REMARKS/ARGUMENTS

Claims 1, 3-6 and 8 were pending. Claims 1, 3, 5, 6, and 8 sere rejected under 35 U.S.C. 103(a) as being unpatentable over Thorner et al. (US Patent No. 6,422,941).

I. THE PRESENT INVENTION

Some embodiments of the present invention are directed towards increasing the realism of a driving simulator. In the specification, one feature introduced is the addition of a random vibration to a game gearlever to simulate operation of a "real vehicle," for example, by randomly vibrating a gear shifter while it is in gear. More specifically, the specification states:

> A value acquired form the storage device 403 may not be directly specified as the value of the repulsive force. However, a manner in which the level of the repulsive force is heightened or lowered cyclically or by generating a random number and then instruction information is generated, may be employed. P. 18, l.13-16. Emphasis added.
>
> By minutely heightening or lowering the repulsive force by such a unique vibration number, the vibration of the gearlever in a real vehicle can be reproduced. P. 18, l.19-21. Emphasis added.

Additionally, the specification states that the random heightening or lowering may be performed cyclically. In particular, the specification states:

> The heightening or lowering range, the cycle, and characteristics of a random number of this case may be changed in accordance with the game status and the position of the lever. P.4,l.14-16.
>
> Further, a manner in which the heightening or lowering degree is determined not by vibration as described above but by a random number may be employed. In this case, not vibration in a unique vibration number, but random vibration is transmitted to the player. P. 18, l.22-25. Emphasis added.

Claim 1 has been amended to refer to the cyclical aspect described above. More specifically, claim 1, as amended, recites:

> and wherein, the generation unit cyclically generates a random number and designates as the instruction information, a value obtained by heightening or lowering the repulsive force specified by the acquired repulsive force information with the generated random number.

II. THORNER

Thorner relates to a tactile feedback system for computer video games. In certain types of games, Thorner states that feedback for crashes or impacts is provided. More specifically Thorner states:

> In games or simulations, any number of generally traumatic events can occur that will require a very powerful response by the tactile feedback controller 110 when it is operating in its host-independent audio analysis mode. For example, a simulated car being driven by the simulation user may bump another simulated car, or crash into a simulated object at a high velocity. Likewise, a simulated enemy missile or other simulated offensive/defensive weapon may strike a simulated vehicle being piloted by the simulation user. These types of simulated events, and others like them, are typically accompanied by an abrupt and varied rise in the amplitude of some appropriately provided sound effect (hereafter referred to as a "crash" event). Col. 16, l.3-21. Emphasis added.

To provide such tactile feedback, Thorner discloses that special steps are required to provide this feedback. Specifically, Thorner states:

> However, this rise in audio amplitude may not inherently have enough power, and/or may not last long enough, to cause a powerfully appropriate tactile feedback event to match the simulated event. Col. 16, l.21-25.

The special steps include the use of two specific parameters: "CRASH MAGNITUDE" and "CRASH FADEOUT." The crash magnitude represents the maximum force of the feedback, and the crash time span represents how long the feedback will last. For example, Thorner states:

> In order to rectify this shortcoming, in steps 1280 and 1290 the next two parameters, CRASH MAGNITUDE and CRASH TIME SPAN, together allow the combined magnitude and time span of an abrupt rise in the digitally sampled audio to generate a "crash" response. The tactile feedback resulting from this "crash" response is then controlled by the last two parameters in step 1292 and 1294, CRASH HOLD and CRASH FADEOUT. Col. 16, l.26-33. Emphasis added.

The value of CRASH MAGNITUDE is described to be the highest possible value for tactile feedback, and the value of CRASH FADEOUT is selectable. Specifically, Thorner states:

> In such a case, the specific calculated audio result for the audio band in which the crash event occurred is set to its highest possible value, and is not subject to limitation by the previously explained MAXIMUM parameter. This highest possible value is maintained within the appropriate calculated audio result for the time specified in the CRASH HOLD parameter, e.g., 0.25 sec. After the CRASH HOLD time expires, the CRASH FADEOUT parameter specifies the time, e.g., 0.1 sec., that it will take to decay this highest possible output down to zero. This step allows "crash" tactile feedback responses to range from hard hitting, instantly decaying jolts, to instantly peaking and slowly decaying waves. Col. 16,l.46-55. Emphasis added.

It is noted that the types of crashes in Thorner are independent events from each other. For example, a crash into a wall is not typically related to a crash into another vehicle.

Further, it is noted that the values of CRASH MAGNITUDE and CRASH FADEOUT are deliberately set, and are not randomly set.

III. THORNER DISTINGUISHED

A. Claim 1

Claim 1, as amended, is not obvious to one of ordinary skill in the art in light of Thorner. More specifically, the combination does not teach the limitation of and wherein, the generation unit cyclically generates a random number and designates as the instruction information, a value obtained by heightening or lowering the repulsive force specified by the acquired repulsive force information with the generated random number.

The undersigned traverses the Examiner's assertion that CRASH HOLD and CRASH FADEOUT were random parameters. Thorner teaches away from CRASH MAGNITUDE being based upon a random number. As illustrated above, in Thorner, the CRASH MAGNITUDE is described as having "the highest possible value," that is even larger than the MAXIMUM parameter for tactile feedback. Accordingly, the CRASH MAGNITUDE does not heighten or lower an existing repulsive force, but overrides any existing repulsive force. In sum, Thorner does not teach that that value could be a randomly set number, but explicitly teaches that the value is the "highest possible value."

Additionally, Thorner teaches away from the CRASH FADEOUT being based upon a random number. Thorner teaches that the CRASH FADEOUT parameter should be carefully set. Specifically, as illustrated above, it states that CRASH FADEOUT must be carefully set to give the user a feedback of "instantly decaying jolts" or "slowly decaying waves." Setting the CRASH FADEOUT parameter to a random value in Thorner would not provide the controlled decaying jolts or waves that is desired in Thorner.

Additionally, Thorner does not teach that the heightening or lowering of a repulsive force could be performed cyclically, as recited. As noted above, these parameters in Thorner are used to set values for a "traumatic" event, such as a crash. Accordingly, Thorner

does not consider cyclically determining a random number, and modifying a repulsive force, as recited above.

In light of the above, claim 1 is asserted to be allowable for at least the above reasons.

B. Remaining claims

Independent claims 6 and 8, as amended, are also asserted to be allowable, for substantially the same reasons as claim 1, and more specifically, for the specific limitations they recite.

Claims 3-5, dependent upon claim 1, are also asserted to be allowable, for substantially the same reasons as claim 1, and more specifically, for the specific limitations they recite.

CONCLUSION

In view of the foregoing, Applicants believe all claims now pending in this Application are in condition for allowance. The issuance of a formal Notice of Allowance at an early date is respectfully requested.

If the Examiner believes a telephone conference would expedite prosecution of this application, please telephone the undersigned at 650-326-2400.

Respectfully submitted,

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